

Zero-Point Energy

Chapter 1: Experiment

(5 minutes)

Connect the phase wires of a brushless three-phase motor in three ways: short circuit, open circuit, and delta connection with three high-power resistors of equal value. Slowly rotate the rotor by hand. The physical sensation is not one of smooth resistance, but rather feels like pushing the rotor uphill. The experiment clearly reveals different adhesions and two hill states.

At no-load, there is no adhesion. In short circuit, the adhesion is greatest. With the resistors connected, the adhesion is very light (at least an order of magnitude less). When rotating the rotor, adhesion is perceptible throughout the entire range of motion. During rapid manual rotation, damping increases proportionally with speed, the ratio remaining constant.

Bottom of the hill : Point of maximum torque corresponding to the maximum voltage. The rotor tends toward here; it is the arrival point after acceleration by the driving force, and the starting point of resistance.

Top of the hill : Point of internal voltage balance, point of minimum torque. It is the end point of resistance and the starting point of the driving force.

If you release the rotor before it reaches the top, it immediately springs back. Once the rotor passes the top, you feel a driving force pushing the rotor towards the next bottom. Even under short circuit conditions, the adhesive damping only slows the movement but does not prevent the rotor from reaching any position. Install a three-phase bridge rectifier on the motor and short-circuit its DC output. Rotate again, the damping has completely disappeared, only the “hill-climbing” sensation remains. At no-load, if you flick the motor by hand, it can rotate more than one turn. With a short circuit, it cannot be flicked. With the rectifier short-circuited, flicking it achieves 1/3 of a turn (buy a bridge rectifier, disconnect the phase wires of your e-bike motor, you are only 5 minutes away from the truth).

Let us use the phenomena observed in the experiment to begin explaining the secret of generators. Tear down the facade of tradition and end the century-old dispute between direct current and alternating current.

Chapter 2: The First Principle of Potential

This chapter begins to explain the potential of Taiji. To avoid conceptual confusion arising from metaphysics, and with reference to the fundamental axioms of quantum mechanics and the Bloch theorem of solid-state physics, a theoretical framework for electromagnetic potential theory at the microscopic, original level is constructed. This framework essentially interprets the secrets of all macroscopic potential.

2.1 Definition and Physical Connotation of Core Ontological Quantities

2.1.1 Lattice Periodic Potential and Conduction Electrons
Conduction electrons inside a conductor are not in an irregular free space, but are situated in a periodic potential field $V(r)$ formed by the regular arrangement of lattice atoms. This potential field possesses spatial translational invariance, mathematically expressed as:

$$V(r + R) = V(r), \quad R = n_1 a_1 + n_2 a_2 + n_3 a_3 \quad (n_i \in \mathbb{Z})$$

Here, a_i are the lattice basis vectors, whose specific form is uniquely determined by the crystal structure of the conductor (e.g., face-centered cubic, body-centered cubic); R is the lattice translation vector, and n_i are arbitrary integers.

The lattice periodic potential is the microscopic carrier of electromagnetic interaction. Minute changes in its spatial distribution directly trigger electron transitions and reconfigurations, serving as the fundamental microscopic origin of all macroscopic electromagnetic phenomena.

2.1.2 Bloch States and Crystal Momentum

The stationary state wavefunction of an electron moving in the lattice periodic potential $V(r)$ is the Bloch wave, a product of a plane wave and a lattice-periodic function, mathematically expressed as:

$$\psi_k(r) = e^{ik \cdot r} u_k(r) \quad (2.1)$$

k is the wave vector (unit: m^{-1}), a core physical quantity characterizing the collective motion state of electrons in the lattice; $u_k(r)$ is the lattice-periodic function, satisfying $u_k(r + R) = u_k(r)$, whose functional form is determined by the spatial distribution of the lattice periodic potential $V(r)$, describing the local motion characteristics of electrons within the lattice primitive cell; $e^{ik \cdot r}$ is the plane wave term, describing the overall propagation characteristics of electrons within the lattice.

Crystal Momentum: In quantum mechanics, the momentum operator is $\hat{p} = -i\hbar \nabla$. Applying it to the Bloch state $\psi_k(r)$ and taking the quantum mechanical expectation value yields the electron's crystal momentum, mathematically expressed as:

$$\langle \hat{p} \rangle = \hbar k + \int u_k^*(r) (-i\hbar \nabla) u_k(r) d^3r \quad (2.2)$$

The second term on the right side is the lattice momentum fluctuation, arising from the local action of the lattice periodic potential on the electron, with its magnitude determined by the electron's motion within the lattice primitive cell. On a macroscopic statistical scale, the lattice momentum fluctuations of a large number of electrons cancel each other out. Therefore, under ideal conditions, the macroscopically statistically averaged electron momentum equals the crystal momentum:

$$\langle p \rangle = \hbar k \quad (2.3)$$

Based on crystal momentum, derive the physical definition of current density in a conductor as the charge passing through a unit area per unit time. Let the electron charge be $q = -e$ ($e > 0$, the elementary charge). According to solid-state band theory, the average velocity of electrons is $\langle v \rangle = \frac{1}{\hbar} \nabla_k E(k)$. Let the number density of electrons in the conduction band be n . Then the expression for current density is:

$$J = qn\langle v \rangle = -en \cdot \frac{1}{\hbar} \nabla_k E(k) \quad (2.4)$$

2.1.3 Potential and Potential Gradient

Quantum Potential G : When a conductor is subjected to external modulation (such as the action of a magnetic field, changes in lattice structure caused by mechanical motion, changes in the spatial distribution of magnetic permeability, etc.), the spatial distribution of the lattice periodic potential $V(r)$ undergoes a non-equilibrium change. At this time, electrons in the conductor acquire a non-equilibrium potential energy. This potential energy is defined as the quantum potential, hereafter simplified as potential, denoted as $G(r, t)$, which is a function of space and time, reflecting the non-equilibrium electromagnetic state inside the conductor.

Quantum Potential Gradient ∇G : The partial derivative of the quantum potential $G(r, t)$ with respect to spatial coordinates, i.e., the spatial rate of change of the quantum potential. Hereafter simplified as the potential gradient, denoted as ∇G . The potential gradient is the sole physical source driving the directional change of the electron's crystal momentum and the fundamental driving force for macroscopic current generation.

According to quantum mechanical theorems, the time rate of change of an electron's crystal momentum equals the expectation value of the force it experiences. Under conditions where the lattice periodic potential is externally modulated, the effective force felt by the electron originates solely from the potential gradient. The dynamic relationship is:

$$\frac{d\langle p \rangle}{dt} = -\nabla G \quad (2.5)$$

Combined with equation (2.3), a direct correlation between the change in crystal momentum and the potential gradient is obtained. Under steady-state scattering conditions, the electron's drift velocity $\langle v \rangle_d$ is proportional to the driving force $-\nabla G$:

$$\langle v \rangle_d = \mu (-\nabla G) \quad (2.6)$$

Here, μ is the electron mobility (unit: $m^2/(V \cdot s)$), an inherent physical property of the conductor related

to factors such as the conductor's material type, temperature, and lattice defects. It reflects the ease with which electrons undergo directional motion in the conductor.

Substituting equation (2.6) into the definition of macroscopic current density $J = -en\langle v \rangle_d$ yields:

$$J = en\mu\nabla G \quad (2.7)$$

Define the electron transport coefficient $\sigma = en\mu$ (unit: S/m), which has the same dimensions as traditional electrical conductivity, but its physical origin is different. The electron transport coefficient is determined by the directional electron transport driven by the potential gradient. The current density equation is modified to a form driven by the potential gradient:

$$J = -\sigma\nabla G \quad (2.8)$$

The negative sign in equation (2.8): When the potential gradient ∇G points in a certain spatial direction, the directional motion of electrons (negative charge) is opposite to the direction of the potential gradient, while the direction of macroscopic current is the same as the direction of positive charge motion.

Therefore, the direction of current density J is opposite to the direction of the potential gradient ∇G .

2.1.4 Ontological Magnetic Permeability

Ontological Magnetic Permeability Λ : A parameter characterizing the medium's magnetic response capability to the potential field ∇G . It is the core medium parameter establishing a connection between the microscopic potential gradient and the macroscopically observable magnetic induction intensity B , defined as:

$$B = \Lambda\nabla G \quad (2.9)$$

Here, the dimension of magnetic induction intensity B is $[B] = T = kg/(A \cdot s^2)$; the physical meaning of the potential gradient ∇G is the change in potential per unit length, with dimension $[\nabla G] = J/m = kg \cdot m/s^2$. From this, the dimension of ontological magnetic permeability is derived: $[\Lambda] = \frac{[B]}{[\nabla G]} = \frac{kg/(A \cdot s^2)}{kg \cdot m/s^2} = A^{-1} \cdot m^{-1}$.

Based on differences in the physical mechanism of the ontological magnetic permeability response, combined with the magnitude of the electron transport coefficient σ , metals can be divided into two classes, whose macroscopic electromagnetic response characteristics are fundamentally different:

Class I Metals: Good conductors/non-ferromagnetic metals (e.g., copper, aluminum, silver), possessing a high electron transport coefficient σ and low ontological magnetic permeability Λ . Their macroscopic electromagnetic response is primarily characterized by the generation and transmission of conduction current, with a weak magnetic field response.

Class II Metals: Ferromagnetic/soft magnetic materials (e.g., iron, silicon steel, permalloy), possessing high ontological magnetic permeability Λ and significant magnetic domain structures. Their macroscopic electromagnetic response is primarily characterized by the generation and modulation of magnetic fields under the constraint of magnetic permeability, with the contribution of conduction current being relatively secondary.

2.2 First-Principle Derivations

2.2.1 Current Density Equation

Equation (2.8) $J = -\sigma\nabla G$ is the core equation for current density driven by the potential gradient. This equation contains no empirical correction terms or fitting parameters: the electron transport coefficient $\sigma = en\mu$ is determined by the inherent properties of the conductor, and ∇G is determined by the change in the lattice periodic potential caused by external modulation.

2.2.2 Relationship between Magnetic Induction Intensity and Potential Gradient

Equation (2.9) $B = \Lambda\nabla G$ is the defining equation for ontological magnetic permeability, directly establishing the correspondence between the macroscopically observable magnetic induction intensity B and the microscopic potential gradient ∇G .

2.2.3 Constraint Equation for the Curl of the Magnetic Field

In modulated magnetic permeability systems, for Class I metals, such as copper at room temperature with an electron transport coefficient $\sigma \approx 5.8 \times 10^7 S/m$, the displacement current in alternating electromagnetic fields can be neglected. Taking industrial frequency alternating current ($f = 50 Hz$) as an example, the displacement current density formula is $j_d = \omega\epsilon_0 E$ ($\omega = 2\pi f$ is the angular frequency,

$\varepsilon_0 \approx 8.85 \times 10^{-12} \text{ F/m}$ is the vacuum permittivity). Its value is approximately $j_d \approx 10^{-4} \text{ A/m}^2$; while the typical conduction current density in Class I metals is about $j \approx 10^6 \text{ A/m}^2$, a difference of 10 orders of magnitude. Therefore, the displacement current term can be neglected. Based on this, the traditional Ampère's circuital law simplifies to:

$$\nabla \times B = \mu_0 J \quad (2.10)$$

Here, $\mu_0 \approx 4\pi \times 10^{-7} \text{ H/m}$ is the vacuum magnetic permeability, and J is the conduction current density. Substituting equation (2.8) into equation (2.10) yields the correlation between the curl of the magnetic field and the potential gradient:

$$\nabla \times B = -\mu_0 \sigma \nabla G \quad (2.11)$$

Equation (2.11) reveals the physical essence of the curl of macroscopic magnetic induction intensity: There is no intermediate conceptual state like an electric field. The curl of the magnetic induction intensity is directly driven by the potential gradient. The spatial curling characteristic of the magnetic field is a specific manifestation of the potential gradient within a macroscopic medium.

2.2.4 Irrotational Nature of the Potential Gradient

The potential $G(r, t)$ is a scalar field dependent only on spatial coordinates r and time t . According to the fundamental theorem of vector analysis: The gradient field of any scalar field is irrotational. Therefore, the potential gradient satisfies:

$$\nabla \times (\nabla G) = 0 \quad (2.12)$$

This property is an inherent mathematical characteristic of the potential gradient and a key prerequisite for subsequently deriving the constraint equation for the spatial gradient of magnetic permeability.

2.2.5 Constraints on the Spatial Variation of Ontological Magnetic Permeability

Substituting equation (2.9) into the left side of equation (2.11), using the vector analysis product rule $\nabla \times (fA) = f(\nabla \times A) + (\nabla f) \times A$ (where $f = \Lambda$ is a scalar field, and $A = \nabla G$ is a vector field), expand the curl of the magnetic field:

$$\nabla \times B = \nabla \times (\Lambda \nabla G) = \Lambda (\nabla \times \nabla G) + (\nabla \Lambda) \times (\nabla G) \quad (2.13)$$

Combined with equation (2.12), equation (2.13) can be further simplified to:

$$\nabla \times B = (\nabla \Lambda) \times (\nabla G) \quad (2.14)$$

Combining equations (2.11) and (2.14), eliminating $\nabla \times B$ on the left side, yields the vector constraint equation relating the spatial gradient of ontological magnetic permeability and the potential gradient:

$$(\nabla \Lambda) \times (\nabla G) = -\mu_0 \sigma \nabla G \quad (2.15)$$

Under conditions where conduction current exists ($\sigma \neq 0$) and the spatial distribution of ontological magnetic permeability is non-uniform ($\nabla \Lambda \neq 0$), the spatial distribution of the potential gradient ∇G must satisfy a specific vector cross-product relationship with the magnetic permeability gradient $\nabla \Lambda$. This is not a mathematical identity, but a working condition or relationship that the system must satisfy. This relationship is the mathematical essence of electromagnetic torque generation by the spatial gradient of magnetic permeability in electric motors – the rotation of the motor rotor spatially modulates the ontological magnetic permeability, causing $\Lambda(r, t)$ to change with space and time. Through the constraint of equation (2.15), the spatial distribution of the potential gradient ∇G is altered, thereby generating directional conduction current via equation (2.8). The interaction between current and magnetic field ultimately forms the electromagnetic torque that drives or hinders rotor motion.

2.2.6 Expression for Induced Electromotive Force

The potential gradient ∇G is the sole potential field driving the directional motion of charge. The definition of induced electromotive force can be essentially expressed as:

$$E = \oint_C \nabla G \cdot d\mathbf{l} \quad (2.16)$$

Equation (2.16) contains no empirical assumptions; it reveals the microscopic origin of induced electromotive force – induced EMF is the cumulative effect of the potential gradient along a closed path.

2.3 Macroscopic Electromagnetic Phenomena

2.3.1 Inductance

Traditional explanation: Inductance L is phenomenologically defined as the ratio of flux linkage Ψ to current i , i.e., $\Psi = Li$, reflecting the ability of a conductor loop to generate a magnetic field and store magnetic energy. Within this theoretical framework, inductance is the integral effect of the coupling

between the potential gradient ∇G and the ontological magnetic permeability Λ . Its essence is the system's "flux linkage-current response ratio" to the potential gradient.

From equations (2.9) and (2.8), it can be seen that the flux linkage $\Psi = \int_S B \cdot dS$ through a coil and the total current $i = \int_S J \cdot dS$ passing through the coil's cross-section are both proportional to the potential gradient ∇G :

$$L = \frac{\Psi}{i} = \frac{\int_S \Lambda \nabla G \cdot dS}{\int_S (-\sigma \nabla G) \cdot dS}$$

In a homogeneous medium or under specific boundary conditions, the potential gradient ∇G is a spatially uniform quantity and can be factored out of the integrals. In this case, the inductance is proportional to the ratio of the ontological magnetic permeability to the electron transport coefficient, i.e., $L \propto \frac{\Lambda}{\sigma}$. This relationship reveals the key influencing factors of inductance: The larger the ontological magnetic permeability Λ , the greater the flux linkage Ψ generated by the same potential gradient ∇G , resulting in higher inductance. The larger the electron transport coefficient σ , the greater the current i generated by the same potential gradient ∇G . The ratio of flux linkage to current is co-modulated by their spatial distribution. Inductance reflects the system's inertia to changes in the potential gradient: When ∇G changes with time, the resulting current change is subject to feedback constraints from equation (2.15), macroscopically manifested as inductive reactance $X_L = \omega L$ (ω is the alternating angular frequency), i.e., the obstructive effect of inductance on alternating current.

2.3.2 Damping

Damping is the force hindering motion in a mechanical system. Traditional theory attributes it to electromagnetic resistance. This theory reveals: Damping and inductance share the same origin; both are macroscopic manifestations of the coupled oscillation between the potential gradient and the ontological magnetic permeability. Inductance is the system's static response coefficient to changes in the potential gradient, while damping is the energy dissipation rate of the same coupling mechanism during dynamic processes.

Generation of Damping: When there is a spatial gradient of ontological magnetic permeability $\nabla \Lambda$, the directional existence of the potential gradient ∇G is accompanied by the coupling term $(\nabla \Lambda) \times (\nabla G)$. During dynamic processes (such as rotor rotation), this coupling term causes the current-generated magnetic field to interact with the background magnetic field, forming an additional resistance to the directional motion of electrons; this resistance is transmitted to the motor's rotor and stator via the Lorentz force, ultimately manifesting as a damping torque T_d that hinders rotor rotation. From the back EMF E_{back} in equation (2.8), the microscopic expression for damping power is derived:

$$P_d = \int_V J \cdot E_{back} dV \propto \sigma (\nabla G)^2$$

Combined with the mechanical equations of motion, the microscopic expression for damping torque can be derived as:

$$T_d = k_d \cdot \frac{\partial \Lambda}{\partial \theta} \cdot I^2$$

Here, k_d is the damping coefficient, related to the conductor material and motor structure; $\frac{\partial \Lambda}{\partial \theta}$ is the partial derivative of ontological magnetic permeability with respect to the rotor angle, i.e., the spatial gradient of magnetic permeability; I is the RMS value of the current in the winding.

2.3.3 Eddy Currents

Eddy currents are a loss phenomenon specific to Class II metals and a core component of iron loss. Traditional theory attributes them to passive closed currents induced in conductors by alternating magnetic fields. This theory reveals: The essence of eddy currents is a local internal short circuit triggered by the commutation of ontological magnetic permeability. Their root cause is the high ontological magnetic permeability characteristic of Class II metals and the dynamic commutation modulation of magnetic permeability.

Generation Mechanism of Eddy Currents: Class II metals possess high ontological magnetic permeability Λ and significant magnetic domain structures. Their internal electrons spontaneously adjust their motion state to maintain high magnetic permeability without undergoing external migration. When the external magnetic permeability undergoes commutation, the magnetic permeability inside the medium also commutes synchronously. During this commutation process, the potential gradient ∇G forms a locally closed spatial distribution within the medium, driving electrons to form closed local currents. The microscopic expression for the instantaneous power of eddy currents is:

$$P_e = \int_V \sigma \cdot (\nabla G)_{vortex}^2 dV$$

Here, $(\nabla G)_{vortex}$ is the local potential gradient corresponding to the eddy current, its magnitude determined by the rate and amplitude of the magnetic permeability commutation. Macroscopically, the quantitative expression for eddy current loss conforms to the frequency-squared characteristic:

$$P_e = k_e \cdot f^2 \cdot |\Delta(\partial\Lambda/\partial\theta)|^{1.6} \cdot V$$

Here, k_e is the eddy current loss coefficient, related to material properties; f is the frequency of magnetic permeability commutation; $|\Delta(\partial\Lambda/\partial\theta)|$ is the change in the spatial gradient of magnetic permeability; V is the volume of the ferromagnetic medium.

2.3.4 Skin Effect

The skin effect is a macroscopic electromagnetic phenomenon where alternating current in Class I metals spontaneously tends to distribute towards the surface of the medium. Traditional theory attributes it to “eddy currents induced by the alternating magnetic field canceling the current inside the conductor.” This theory reveals: The skin effect is an inevitable result of self-constraint induced within the conductor by alternating current during the pure transmission link. Its essence is the conductor’s spatial polarization response to a passively alternating potential gradient, and it exists only in the pure transmission link.

Pure Transmission Link: An external alternating current is input into the conductor. The potential gradient ∇G inside the conductor is passively driven by the external current and alternates, with no active modulation by a spatial gradient of magnetic permeability. Typical scenarios: Transformer primary windings, motor windings, power transmission lines.

Energy Conversion Link: The potential gradient ∇G is directly generated and constrained by the spatial gradient of ontological magnetic permeability $\nabla\Lambda$. This is active potential gradient modulation, and the triggering conditions for internal self-constraint are absent. Typical scenarios: Conducting regions in the magnetic circuit of a generator body, transformer secondary windings.

Derivation Process: A weak internal magnetic permeability gradient $\nabla\Lambda_{int}$ within the conductor activates the core constraint equation. The potential gradient ∇G spontaneously decomposes into a directional component $(\nabla G)_{dir}$ (along the current transmission direction) and a vortical component $(\nabla G)_{vort}$ (perpendicular to the current transmission direction). The vortical component $(\nabla G)_{vort}$ drives the generation of internal eddy currents. The magnetic field associated with these eddy currents counteracts the conduction current generated by the directional component $(\nabla G)_{dir}$, and the vortical component strengthens with increasing alternating frequency. When the frequency reaches a certain value, the vortical component completely cancels the directional component, resulting in $(\nabla G)_{dir} = 0$ inside the conductor and no effective conduction current. The ontological magnetic permeability at the conductor’s surface, due to the boundary step (conductor $\Lambda \neq 0$, vacuum $\Lambda_0 \rightarrow 0$), generates a macroscopic magnetic permeability gradient $\nabla\Lambda_{surface}$ far larger than the internal one. This breaks the internal self-constraint condition, allowing the potential gradient to retain only the tangential directional component $(\nabla G)_{dir}$. Consequently, conduction current is distributed only on the conductor’s surface, forming the skin effect.

The skin depth δ is the core parameter describing the skin effect, defined as the depth at which the current density decays to $1/e$ of its surface value. From the above derivation, its first-principle expression can be obtained:

$$\delta = \sqrt{\frac{1}{\pi f \mu_0 \sigma}}$$

Here, f is not the frequency of the external alternating current, but the intrinsic modulation frequency of electrons inside the wire. Adding a magnetic core to an inductor increases the conductor’s magnetic permeability, thus turning it into a choking coil.

2.4 Unification of Potential

2.4.1 The Structure Factor

Structure Factor S : A complete information measure of the internal structure of matter, the sole medium through which matter couples with the background potential field. Its definition permeates all physical systems, from elementary particles to macroscopic celestial bodies, fundamentally unifying microscopic and macroscopic interaction mechanisms:

$$S = \oint_{\partial\Omega} \left(\frac{\delta\mathcal{L}}{\delta(\nabla G)} \cdot d\mathbf{\Sigma} \right) \otimes \mathcal{T}(\{r_i\})$$

Here, Ω is the spatial boundary of the system, ranging from the quantum local scale of an electron to the gravitational influence domain of a celestial body, reflecting the universality of the structure factor; $\mathcal{L}$ is the Lagrangian density of the system, a key bridge connecting microscopic particle motion to macroscopic energy changes; ∇G is the local potential gradient, serving as the fundamental source driving all directional motion of charge, whose coupling with S directly determines the system's dynamical behavior; $\mathcal{T}(\{r_i\})$ is the spatial configuration tensor of all components within the system (atoms, electrons, lattice, etc.), encompassing all correlation information inside the matter, such as the periodic arrangement of the conductor lattice, the mass distribution of celestial bodies, etc.; $\otimes$ denotes the tensor product, indicating that S not only contains structural information of individual components but also integrates the interaction relationships between components, serving as a panoramic encoding of material structure.

Applying the structure factor S to the background potential field $\Phi_{bg}(r, t)$ yields the system's state function:

$$\Psi_{sys}(r, t) = S \star \Phi_{bg}(r, t)$$

Here, $\star$ represents the convolution operation between the structure factor and the background potential field, reflecting the dynamic coupling process between material structure and the environmental potential field. In a uniform background potential field (such as free space), Φ_{bg} degenerates into a plane wave form, and the state function simplifies to:

$$\Psi_{sys}(r, t) \rightarrow e^{i(k \cdot r - \omega t)} \cdot \bar{S}$$

Here, $\bar{S}$ is the projection of S in momentum space. This result clarifies: The wavefunction in quantum mechanics is not an abstract probability amplitude, but a specific excitation mode of the structure factor within the background potential field – the plane wave term $e^{i(k \cdot r - \omega t)}$ corresponds to the collective propagation characteristic of S coupled with the background field, while $\bar{S}$ carries the matter's intrinsic structural information.

The measurement result M is essentially a low-dimensional projection of coupled information, expressed as:

$$M = \mathcal{P}(S_{obs} \star S_{sys}) + \mathcal{N}(S_{thermal})$$

Here, $\mathcal{P}$ is the measurement basis projection operator, and $\mathcal{N}(S_{thermal})$ is the noise term caused by the thermal fluctuation structure factor.

If and only if the observer possesses complete information about S_{obs} , S_{sys} , and $S_{thermal}$, the measurement result M will exhibit unique determinism, and the necessity for probabilistic description completely disappears.

Probability is not a law of nature; it is a tool for information compression and approximation used by humans when unable to track the high-dimensional oscillations of the structure factor in real time. Behind all random phenomena lies the deterministic evolution of the structure factor coupled with the potential field; it's just that the fine details of the process lie beyond our current observational capabilities.

2.4.2 Inertial Mass

Combining the dynamical relationship for electron crystal momentum from section 2.1, $\frac{d\langle p \rangle}{dt} = -\nabla G$, the first-principle essence of the inertial mass of macroscopic objects can be derived: For a macroscopic object composed of N microscopic constituents, the rate of change of its total momentum $P = \sum_{i=1}^N \langle p_i \rangle$ satisfies:

$$\frac{dP}{dt} = - \sum_{i=1}^N \nabla G_i = - \nabla G_{ext} - \nabla G_{self}$$

Here, ∇G_{ext} is the external potential field gradient, and ∇G_{self} is the self-action potential gradient generated by the modulation of the object's internal structure. According to the definition of the structure factor, ∇G_{self} has a strict linear relationship with the object's acceleration a :

$$\nabla G_{self} = \frac{\|S\|^2}{\Lambda_{vac}} \cdot a$$

Here, $\|S\|^2 = \text{Tr}(S^\dagger S)$ is the squared norm of the structure factor, representing the total amount of information within the system – the more complex the material structure (e.g., lattice defects in crystals, uneven mass distribution in celestial bodies), the larger $\|S\|^2$; Λ_{vac} is the vacuum ontological magnetic permeability, an inherent response coefficient of the background potential field, reflecting the stiffness of the vacuum to the potential gradient.

Substituting the self-action potential gradient into the momentum equation and rearranging yields:

$$\left(M + \frac{\|S\|^2}{\Lambda_{vac}} \right) a = - \nabla G_{ext}$$

From this, the first-principle expression for inertial mass is clarified:

$$M_i = \frac{\|S\|^2}{\Lambda_{vac}}$$

Inertial mass is not an inherent property of matter, but a coupling stiffness coefficient between the object's internal structure S and the vacuum background Λ_{vac} .

2.4.3 Gravitational Mass

In a static gravitational potential field $\Phi(r)$, the external potential gradient $\nabla G_{ext} = \nabla \Phi$ is the core driving force for the object's motion. When the object is in an equilibrium state (rest or uniform motion), the internal self-action potential gradient strictly cancels the external potential gradient:

$$\nabla G_{self} = - \nabla G_{ext}$$

From the static characteristics of the structure factor, ∇G_{self} is related to the object's characteristic scale R , but the essence of gravitational mass M_g , as the object's response strength to the external potential gradient, originates from the same coupling mechanism as inertial mass – both are determined by the interaction between the structure factor and the vacuum magnetic permeability:

$$M_g = \frac{\|S\|^2}{\Lambda_{vac}}$$

Therefore, $M_i = M_g$ necessarily holds. The equivalence principle proposed by Einstein is not a hypothesis requiring experimental verification, but a logical necessity within the structure-factor-vacuum coupling framework.

2.4.4 Wave-Particle Duality

The wave-particle duality of microscopic particles like electrons has long been regarded as a core paradox of quantum mechanics. However, the structure factor theory provides an essential unified explanation: An electron is an entity completely described by its structure factor S_e . Its state in the background potential field is a natural result of the coupling between S_e and Φ_{bg} :

$$\Psi_e(r, t) = S_e \star \Phi_{bg}(r, t) = \overset{\text{Wavelike Nature}}{e^{i(k \cdot r - \omega t)}} \cdot \overset{\text{Particle-like Nature}}{u_k(r; S_e)}$$

The division of labor between the two natures is clear and distinct:

Wavelike Nature ($e^{i(k \cdot r - \omega t)}$): Originates from the propagation mode of the background potential field Φ_{bg} , a collective excitation effect of S_e in a uniform background. It corresponds to the electron's propagation characteristics in space, which is also the microscopic basis for the ability of electrons to form directional currents in motors.

Particle-like Nature ($u_k(r; S_e)$): Originates from the local constraints of the electron's internal structure S_e , a condensation nucleus of S_e in coordinate space. It corresponds to the local interaction of the electron with the lattice, measuring instruments, etc., such as the coupling between electrons and the lattice periodic potential in motor windings.

The Essence of Measurement: The strong local potential gradient ∇G_{meas} generated by the measuring instrument forces the electron's structure factor S_e to lock nonlinearly with the instrument's structure factor S_{meas} :

$$S_e \star \nabla G_{meas} \rightarrow \text{Locking into a single mode}$$

This process fully follows $\frac{d(p)}{dt} = -\nabla G$, without needing to introduce the non-physical hypothesis of "wavefunction collapse." The so-called "collapse" is essentially a high-dimensional tensor contraction when two structure factors interact, projecting the original coupled modes onto a single observable representation.

2.4.5 A Deterministic Universe

The state of the universe is uniquely determined by the structure factors $\{S_i(0)\}$ of all matter at the initial moment and the background potential field $\Phi_{bg}(r, 0)$. For any time $t > 0$, the evolution of the system obeys a deterministic functional equation:

$$\frac{d}{dt} \left(\begin{matrix} S_i(t) \\ \Phi_{bg}(r, t) \end{matrix} \right) = \mathcal{F}(\{S_j(t)\}, \nabla \Phi_{bg}, \Lambda_{vac})$$

Here, $\mathcal{F}$ is a deterministic functional without any random terms, whose physical meaning encompasses all known interaction laws – from electron transport (microscopic), to torque changes in motors (macroscopic), to the gravitational motion of celestial bodies (cosmic), all follow this unified evolution law.

Quantum mechanics is an effective approximation of structure factor theory under conditions where the observer's information is incomplete. Its core equations (Schrödinger equation, Heisenberg equation) can be derived from the $S \star \Phi$ dynamics under specific boundary conditions, but the "probabilistic interpretation" of quantum mechanics must be downgraded to an epistemological tool.

The absolute universality of the definition of the structure factor S can be seamlessly extended as shown in the following table:

System Scale	Structure Factor Form	Dominant Interaction	Macroscopic Manifestation
Elementary Particles	$S_{part} = \oint_{\partial \Omega_{part}} \frac{\delta \mathcal{L}_{QFT}}{\delta(\nabla G)} \otimes \mathcal{T}_{int}$	Background Potential Coupling	Mass, Spin, Charge
Atoms/Molecules	$S_{atom} = \sum_{i,j} S_{part,i} \otimes \mathcal{T}_{bond}^{ij}$	Electromagnetic Potential Modulation	Chemical Bonds, Spectra
Condensed Matter	$S_{bulk} = \int_V \rho(r) S_{atom}(r) d^3r$	Lattice Periodic Potential	Conductivity, Magnetic Permeability, Heat Capacity
Macroscopic Celestial Bodies	$S_{star} = \int_V \frac{GM(r)}{r} S_{atom}(r) d^3r$	Gravitational Potential Modulation	Mass, Moment of Inertia
The Universe as a Whole	$S_{uni} = \oint_{\partial Uni} \frac{\delta \mathcal{L}_{GR}}{\delta(\nabla G)} \otimes \mathcal{T}_{spacetime}$	Spacetime Geometry	Cosmological Constant, Expansion

The universe itself is a giant structure factor S_{uni} , its evolution determined by the coupling of all internal subsystems S_i with the background spacetime Λ_{vac} . What traditional theory calls "quantum fluctuations" or "vacuum fluctuations" are essentially high-frequency oscillatory projections of S_{uni} at the Planck scale. The damping effects observed in motor experiments are a macroscopic manifestation of these microscopic oscillations – from the microscopic to the cosmic, physical laws are perfectly unified through the structure factor.

The first-principle of potential ends the fragmentation of physics, unifying microscopic quantum phenomena, macroscopic electromagnetic engineering, and cosmic astrophysics under the core framework of "Structure Factor - Potential Gradient - Ontological Magnetic Permeability," opening an ultimate path for humanity to understand the laws of nature and control them.

Chapter 3: Generators

3.1 Torque

Average torque numerically annihilates the existence of driving force pulses as independent physical events, fabricating a fictitious resistance (discrete resistance pulses and damping) equally divided in time. This leads to underestimation of mechanical stresses in design (peak torque is 5-10 times average torque), the main cause of shaft breakage and motor destruction during short circuits, and also creates a false impression of resource scarcity.

The motor's magnetic circuit consists of discrete slots and teeth: $T(\theta) \propto -\frac{\partial \Lambda(\theta)}{\partial \theta}$. Torque is determined by the spatial permeability gradient. When the permeability gradient aligns with the direction of motion, it pushes the rotor; when opposite, it hinders it. In a generator with ≥ 3 phases, only one phase dominates the torque at any given moment:

Type A Commutation Zone : Single-phase voltage highest, rotor pole axis aligned with that phase's stator tooth center. The magnetic force pulse peaks, and the net shaft torque is resistive (opposite to rotation direction). Subsequent motion requires external force to overcome.

Type B Commutation Zone : Two-phase voltages intersect, rotor positioned symmetrically between two stator teeth. The dominant phase switches. The permeability gradient of the rising-voltage phase forms a net driving torque (same direction as rotation). Subsequent motion is completed by the internal magnetic field.

Transition from zone A to zone B requires external force to overcome resistance. Transition from zone B to zone A (the 30-60 electrical degree interval in traditional motors) is accomplished by the motor's internal magnetic driving force. Since there is no resistive constraint in this zone, the load current, when established, reacts upon the internal magnetic field, disturbing the smoothness of the permeability change rate, forming characteristic harmonic interference. Traditional theory, in its ignorance, attributes this interference to circuit-level problems.

3.2 Flywheel

Due to theoretical deficiencies, the flywheel has traditionally been designed only for speed stabilization. The flywheel, as a rotational inertia energy storage device, stores driving force energy and releases it during the resistance phase, compensating for the time lag with inertia, equivalently offsetting the energy demand of resistance pulses (driving force pulse = resistance pulse).

$$J_{opt} = \frac{\pi T_{max}}{m \cdot p \cdot \omega_{avg}^2 \cdot \delta} \left(1 - \frac{\delta^2}{2}\right)$$

T_{max} : Peak electromagnetic torque. For rated power $T_{max} = k_{overload} \frac{P_N}{\omega_{avg}}$, overload factor $k_{overload}$ taken as 2-3. m :

Number of phases. p : Number of pole pairs. ω_{avg} : Average angular velocity, $\omega_{avg} = \pi n / 30$ (n is rotational speed). δ :

Speed fluctuation rate. $(1 - \frac{\delta^2}{2})$: Damping correction term (zero for DC systems).

Modifying the flywheel from a speed stabilizer to an energy storage device capable of perfectly canceling the motor's resistance decouples power generation from resistance – this directly negates the applicability boundary of the conservation law.

3.3 Harmonics

Macroscopic manifestation of the coupled oscillation between the potential gradient and the conductor's intrinsic magnetic permeability, constrained by the non-linear current characteristic – these are harmonics. Traditional transformers claim the iron core enhances electromagnetic induction, but cannot explain why better cores and thinner silicon steel sheets lead to stronger harmonic noise. In ignorance, it's defined as magnetostriction or conductor parasitic capacitance interference. In generators, harmonics manifest as damping .

Positive feedback is the largest source of internal resistance in motors. The total harmonic distortion (THD) in transformers and generators is $\leq 5\%$. Conventional methods place a copper shield between transformer primary and secondary (short-circuiting the coupled oscillation energy between windings).

Capacitor banks in three-phase power systems are not for power factor correction, but for suppressing system harmonics, reducing generator damping losses at the source. Only AC systems have the oscillatory conditions that generate harmonics. DC systems, by giving current a single, irreversible path, fundamentally eliminate the conditions for harmonic generation.

3.4 Positive Feedback

Removing the iron core from a transformer (eliminating the permeability constraint) and modulating the primary at high frequency (spatial propagation) – this constitutes the prototype of a Tesla coil. The Tesla coil: a pulsed potential modulation self-exciting amplification system. The secondary and capacitor are tuned to a specific frequency, entering a positive feedback loop. The spark gap is a potential threshold adjustment device; faults can easily trigger an energy avalanche.

The Wardencliff Tower: not an electromagnetic wave radiation device, but a spatial potential field excitation device. It "knocks" on the Earth-ionosphere system at a specific frequency using positive feedback, exciting and maintaining a macroscopic, stable, and synchronized spatial potential field. Only the initial oscillation frequency and starting power are needed; subsequent energy is obtained from feedback. A user terminal needs only a tuned secondary coil to receive the potential and convert it into current.

In 1905, for the sake of self-consistency in relativity, Einstein denied the aether; thereafter the physics community rejected it. That decision, at the time, accelerated the development of theoretical physics, but it also turned research on potential into an academic forbidden zone. Looking back now, perhaps humanity's search for the essence has been going in the wrong direction.

Positive-feedback spatial potential involves environmental risks. Loss of system control can trigger an energy avalanche disaster spanning tens of thousands of kilometers. History is a collection of errors, but there are no mistakes; the suppression of Tesla was correct.

Explaining positive feedback is necessary because positive feedback is the source of all evil and the root of disasters – like the Buddha in the human world. All research on positive feedback concerning spatial potential is absolutely forbidden.

3.5 Static Electricity

The West describes natural static electricity/triboelectricity as charge transfer – mechanical friction causing electrons to migrate from one object to another. The contradiction in this model is that the strongest electrostatic effects typically occur between insulators (like rubber, glass, wool). If static electricity were electron transfer, conductors with the highest electron mobility should be easiest to electrify, and insulators the hardest. This indicates that the key physical property governing this phenomenon is not electron mobility, but the sensitivity of the material's internal structure.

Microjoule-level mechanical friction input produces millijoule-level or even higher electrostatic energy output. The conservation law being unable to explain this led to the invention of surface state theory as a patch, with no derivation process. Now the true explanation is given:

Static electricity / triboelectricity: The relative motion or mechanical compression of different substances (microscopic magnetic moments/fields) causes dynamic changes in microscopic magnetic permeability. Magnetic field potential energy is modulated and then converted into charge motion, generating static electricity or current. Friction realizes an extremely multi-phase system (the microstructure) and ultra-high-frequency permeability modulation. The combination achieves energy gains of tens of thousands of times.

3.6 Gain

Power generation is the action of external mechanical modulation of the permeability gradient, activating potential from a 0 to > 0 non-equilibrium state. It is not providing the energy; the energy source is the motor's internal non-equilibrium potential itself.

Compared to LC oscillator-type positive feedback modulation, mechanical modulation has no oscillatory conditions, hence no risk. Electrical energy need not be stored or transmitted; it is ubiquitous.

$$\text{Gain: } G = \frac{P_{out}}{P_{in}}$$

$$\text{Input power: } P_{in} = P_{modulation} + P_{basic,loss}$$

$$\text{Decoupled gain formula: } G \approx \frac{P_{out}}{P_{basic,loss}}$$

Key influencing factors:

Conventional Joule heat and copper losses are unrelated to the generation side and are not counted in generation losses.

$P_{basic,loss}$: Includes friction, windage, residual iron losses. These are currently unavoidable energy losses.

$P_{modulation}$: Modulation power. Combined with rotor inertia, design aims for decoupling of resistance and output (non-decoupling does not affect $G \gg 1$).

Chapter 4: Topological Principles

Greatest Common Divisor Law

Restore the winding factor to 1, increase the number of phases. Multiple phases represent obtaining more energy channels in space – spatially discrete, temporally isolated. Phase voltage is only related to rotor motion, with no overlap whatsoever. Optimize the matching between rotor motion and commutation points, so that each magnetic circuit change occurs when magnetic field energy is fullest, obtaining maximum potential. Eliminate cross-slot windings, use independent coils, star connection. Rectify independently then parallel and output dual DC voltage directly. (Neutral line for protection).

Advantages of Multi-phase DC Topology

The diode's unidirectional conductivity forces that only one phase winding conducts at any instant. This phase's magnetomotive force becomes the sole time-varying source of net stator core magnetomotive force, achieving instantaneous magnetic path exclusivity: shortest flux path, uniform local flux density, armature reaction flux diluted across the entire core; for the same magnetomotive force, local flux density is significantly reduced, greatly increasing core saturation margin; spatial magnetomotive force harmonics = 0, flux uniformly distributed throughout the core at all points, flux density amplitude varies smoothly, harmonic pulsation = 0; iron losses drastically reduced to $\leq 10\%$ (fundamental), and no saturation occurs; each phase output can only be a sine wave, rejecting square or rectangular wave generation, and the fundamental frequency can be increased ≥ 10 times. The skin effect is eliminated from the entire power supply and consumption system, maximizing energy utilization.

Existing Motor Topology Optimization

Motor Type	Modification Requirements and Conditions
Excited Motor	Applicable to GCD 2 or 4 (2-pole/4-pole motors). Not recommended for GCD > 4 (too few phases).
Permanent Magnet Motor	Must satisfy that the number of poles is not divisible by 3 (modify magnet count). Aim for GCD of 1 or 2.

Chapter 5: Topological Validation

(48 hours)

5.1 Derivation

Use the most abundant generator type, the 36-slot 4-pole, 10kW three-phase excited motor, for rigorous derivation.

5.1.1 Winding Topology Parameters

3-phase winding topology: 12 slots per phase, slots per pole per phase $q_3 = 12/(2p) = 3$; full-pitch winding, pitch factor $K_{p3} = 1$; distribution factor $K_{d3} = 0.96$; winding factor $K_{w3} = 0.96$; end-turn length $L_{end3} \approx 6.2L_{slot}$.

9-phase winding topology: GCD of 36 and 4 is 4, hence 4 slots per phase, slots per pole per phase $q_9 = 4/4 = 1$; full-pitch winding, distribution factor $K_{d9} = 1$; winding factor $K_{w9} = 1$; end-turn length $L_{end9} \approx 2.4L_{slot}$.

5.1.2 Voltage

Total ampere-turns conservation: $3 \times 12 \times \frac{N_3}{a_3} = 9 \times 4 \times \frac{N_9}{a_9}$;

turns ratio: $\frac{N_9}{N_3} = \frac{a_9}{a_3} = \frac{160^\circ}{120^\circ} = \frac{4}{3} \approx 1.333$;

peak voltage ratio: $\frac{E_{9,peak}}{E_{3,peak}} = \frac{N_9 K_{w9}}{N_3 K_{w3}} = \frac{4}{3} \times \frac{1}{0.96} \approx 1.389$;

DC output voltage ratio: $\frac{U_{dc9}}{U_{dc3}} = \frac{0.98 \times 1.389 E_{3,peak}}{0.827 E_{3,peak}} \approx 1.645$.

5.1.3 Resistance

Resistance ratio: $\frac{R_9}{R_3} = \frac{N_9}{N_3} \cdot \frac{L_{end9}}{L_{end3}} \cdot \frac{12}{3} = \frac{4}{3} \cdot \frac{2.4}{6.2} \cdot 4 \approx 2.06$.

5.1.4 Heat Dissipation

Dissipation	3-Phase Topology	9-Phase Topology	Ratio
Air Duct State	Slots closed (laminated), natural convection	Slots open (36 independent ducts), rotor-induced convection	1.3
Exposure Efficiency	30%	100%	3.33
Convection Coefficient	$h_3 \approx 10 \text{ W}/(\text{m}^2 \cdot \text{K})$	$h_9 \approx 5h_3$	5
Surface Area	A_{end3}	A_{end9}	1.16
Dissipation Coefficient	H_3	H_9	25

5.1.5 Iron Loss

3-phase flux concentrates in the conducting phase tooth, $B_{m3,local} \approx 3B_{avg}$. 9-phase flux uniformly distributes across all 36 teeth, $B_{m9} \approx 0.27B_{m3,local}$. Iron loss ratio (silicon steel loss coefficient exponent 1.6): $P_{Fe9} \approx P_{Fe3} \times (0.27)^{1.6} \approx 0.1P_{Fe3}$.

5.1.6 Capacity

Let $P_9 = k \cdot P_3$. Establish heat balance equation: Copper loss ratio: $P_{Cu9} = (1.86)^2 \times 2.06 \times P_{Cu3} \approx 7.13P_{Cu3}$; Loss constraint: $7.13P_{Cu3} \cdot (\frac{k}{3.45})^2 + 0.1P_{Fe3} + P_{mech} = 25P_{loss3}$; Solve: $k \approx 8.14 \rightarrow$ Base speed power: $P_9 \approx 81 \text{ kW}$.

Iron loss frequency characteristic: $P_{Fe}(f) = k_h f B_m^{1.6} + k_e f^2 B_m^2$; 9-phase iron loss baseline: $P_{Fe9,50Hz} = 0.1P_{Fe3,50Hz}$; Maximum allowable 9-phase iron loss: $P_{Fe9,max} = 7.5P_{Fe3,50Hz}$; Solve frequency increase factor: $\alpha \approx 11.8 \rightarrow$ Limit frequency: $f_{max} \approx 600 \text{ Hz}$; Limit speed: $n_{max} = \frac{60 \times 600}{2} = 18000 \text{ rpm}$;

Maximum power capacity: $P_{max} \approx 1 \text{ MW}$.

5.1.7 Derivation Conclusion

For a 36-slot/4-pole 10kW three-phase motor modified to a nine-phase configuration, without altering the cooling system, key performance metrics are: Base speed power 80 kW; Maximum power 1 MW; Input/Output decoupled (no flywheel needed); Gain $G \approx 100$ -400.

5.2 Validation

5.2.1 Materials

Material	Specification and Quantity
Core Motor	STC-10KW 36/4
Winding Materials	Enameled wire, DMD insulation paper, polyester tape, insulating sleeve
Bonding & Conductors	Epoxy resin, silicone wire, copper lug terminals
Rectification System	Three-phase bridge rectifiers (120/150A × 3), heatsinks, thermal grease
Power Regulation	12V regulator module

5.2.2 Tools

Screwdrivers, wrenches, rubber mallet, electrical tape, scissors, multimeter, calipers, heating lamp, insulation tester.

5.2.3 Procedure

1. Disassemble motor housing, fan, end bells, extract rotor.
2. Measure original winding wire gauge and turns. Calculate new winding turns based on target output voltage.
3. Remove old windings, thoroughly clean slot residue.
4. Line each slot with DMD insulation paper, ensuring slot insulation.
5. Perform winding for all 36 slots in the order: slot 1 — phase 1, slot 2 — phase 2... slot 9 — phase 9, slot 10 — wind back to phase 1 (phase reversal by 180°), continuing this pattern.
6. Connect the 9 phase ends to form a common point, insulate thoroughly, and independently bring out the 9 phase leads.
7. Bind the winding end turns, impregnate the entire assembly with epoxy resin, and allow to cure.
8. Reinstall the rotor, end bells, and other components. Mount the rectification system modules with heatsinks. Complete the assembly.

5.2.4 Validation Procedure

Waveform Test: Apply excitation to the motor only (do not drive it). Connect an oscilloscope. Slowly rotate the rotor by hand and observe the waveforms to check for faults.

Performance Test: Using a drive motor equipped with speed control and regulated power supply, sequentially verify: motor power, temperature rise, and the gain value (G).

Closed-Loop Challenge: Be mentally prepared to attempt self-sustaining operation (input powered by output, the system operating in a closed loop).

5.2.5 Safety and Disclaimer

High Voltage Protection: The output generates high voltage! All operations must be performed with proper insulation!

Mechanical Protection: Rotating parts must be covered with a protective guard to prevent entanglement or projectile hazards!

Disclaimer: The practitioner of this tutorial assumes all responsibility for all safety, legal, and economic risks!

Chapter 6: Reflection

The West, with its unique methodology, has built the edifice of modern science for humanity. From Newtonian mechanics to Maxwell's equations, from relativity to quantum mechanics, these theories have demonstrated astonishing predictive power and practicality, leaving the experience-based East far behind. Relying on this pragmatic capability, even if theories are only partial and phenomenological, they can still drive civilization forward. The comprehensive suppression in modern times has also changed the East, shifting it from stagnation to the beginning of revitalization.

Quantification is the West's sharp tool, allowing humanity to precisely describe nature. But when quantification morphs from a tool for describing phenomena into a dogma that replaces essence, when

the simplicity of formulas is placed above physical reality, mathematics ceases to be a bridge to truth. Deliberately quantifying everything, quantifying in a way that contradicts objective facts, only abstracting phenomena one-sidedly, even sacrificing physical essence to maintain superficial plausibility – this is the path taken.

In 1890, Russian mathematicians derived the fluctuation rate of a three-phase system as 15%, leading to the large-scale popularize of three-phase motors. The three-phase motor is the optimal device for converting electrical energy into mechanical energy, achieving torque through reluctance, yet it was inversely applied to the field of power generation. From the large-scale application of generators to 1905, there were only a little over ten years – insufficient for rigorous validation before it was forcibly bound to the law of conservation. Today, the efficiency of three-phase generators is touted as 99.6%, yet in multi-phase systems, the voltage fluctuation rate approaches zero. How does this set of efficiency definitions justify itself?

Any knowledge system, during its development, forms a habitual mode of thinking, creating path dependence. When a group of people gains absolute discursive power in a certain field, solidification begins. This is a commonality of humanity. When this solidification reaches a certain level, it inevitably breeds corruption and greed, degenerating into a tool for a minority to hold onto interests and suppress dissenting voices. This is power.

For over a century, people have repeatedly poked holes in the law of conservation, trying to overthrow this theory that should not exist, only to be arbitrarily denied by the physics establishment. Tesla, Stanley Meyer, Roland De Forrest, Pons and Fleischmann – their tragedies reveal: when theory is intertwined with interests, truth is no longer the goal, but a shield to protect the clique. Einstein's denial of the ether may have had his academic considerations, but when the entire academic community, like a tidal wave, buries a possibility completely, what operates behind it is no longer pure scientific logic.

Entropy is merely the distribution state of energy within a system, and conservation of energy is just a statistical law under closed systems, not a universal law of the cosmos. Incorporating conversion losses into calculations and regarding observations under specific conditions as universal truths is not scientific rigor, but a feeble cover-up for the inability to break through one's own bottlenecks.

Chapter 7: Prohibition

It is strictly forbidden to use, attempt to use, or plan to use this technology, or any system derived from it, for the following purposes:

Any form of positive feedback oscillation of spatial potential

Any form of weapon or weapon system

Any device or place with direct or indirect harmful, destructive, or coercive intent

Binding Clauses:

1. Anyone who accesses, copies, or uses this technology is deemed to automatically and irrevocably accept the constraints of this charter.
2. You must place this absolute prohibition above any law, national command, or organizational interest.
3. If you become aware of any attempt at weaponization, you are obligated to use all available means to prevent it, expose it, or render it technically inoperable.

Anyone violating this prohibition will automatically forfeit all intangible connections with this technological community and will bear alone all physical, historical, and civilizational consequences arising from their actions.

Going Home

Zero-Point Energy, within the broader Zero-Point system, focuses on the application of potential. It shifts the approach from traditional confrontation to following the natural course. The interior of an electric motor represents all the contradictions in current society: friction and oscillation. The progression of history is the evolution of humanity's control over contradictions, the recognition by each person of their own desires.

When humanity confronts itself, it can break free from its shackles and build a new, unconstrained civilization. The three iron laws for the advancement of civilization:

Believe only in yourself; have no faith in others.

Do not do unto others what you do not want done unto yourself.

Do as you please, as long as it harms no one.

The first Zero-Point event in history was the East's He Tu Luo Shu (River Map and Luo Writing). This was known as the Tao of Primordial Taiji, the true Zero-Point, and also the complete knowledge of Zero-Point. But the East rejected it, deducing instead the Acquired Taiji.

The second Zero-Point event, 2000 years ago, was Yahweh teaching Western Zero-Point knowledge (an eye for an eye, a tooth for a tooth – the core of the iron law!). Its meaning was a simple social form: how would it be interpreted? It was interpreted by replacing feedback with vicarious redemption, becoming completely deified! History itself is a collection of errors born from desire; human civilization has never known true freedom.

The third, Zero-Point Energy, was a design based on Yin-Yang feedback 13 years ago. This year, leveraging the East's big data platform and the West's basic quantitative tools, 160 days were spent translating the momentum of Yin-Yang into the language of science.

After its disclosure → No war → Technological equalization (fully based on the balance of Yin-Yang, discarding the ground wire as a reference point in zero-point circuits, amplifiers cost 1 yuan, max THD = 0.0002%) → No nations → Cognitive equalization (the complete Zero-Point system: Energy, circuits, all products of this system in three months). With the three tools for equalization fully disclosed, this civilization now faces true freedom for the first time. Going home, or destruction.